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METEOROLOGICAL DATA REPORT

NIKE-HYDAC MK 12 STV (SR-039)
(27 September 1966)

BY

LEN E. CARTER

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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DA Task IV650212A127-02

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ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac, MK 12 STV (SR-039) are presented for the Air Force Ballistic Missile Re-entry Systems Office, General Electric Company, and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

CONTENTS

| | PAGE |
|---|------|
| ABSTRACT ----- | iii |
| INTRODUCTION ----- | 1 |
| DISCUSSION ----- | 1 |
| TABLES | |
| I. Theoretical Rocket Performance Values ----- | 2 |
| II. Ballistic Factors ----- | 3 |
| III. Anemometer-Wind Speed and Direction ----- | 4 |
| IV. Pilot-Balloon-Measured Wind Data ----- | 5 |
| V. Rawinsonde Measured Wind Data ----- | 7 |
| VI. Computer-Calculated Upper Air Data (Release Time: 0500 MST) ----- | 8 |
| VII. Computer-Calculated Upper Air Data (Release Time: 0827 MST) ----- | 14 |
| VIII. Impact Prediction Data ----- | 18 |

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INTRODUCTION

Nike-Hycac, MK 12 STV (SR-039) was launched from Launch Complex 33, L-314, White Sands Missile Range (WSMR), New Mexico, at 0825 hours MST, 27 September 1966.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Division, Atmospheric Sciences Laboratory (ASL), WSMR, New Mexico. The Ballistic Meteorologists for this firing were Len E. Carter and SFC Leon H. Allen.

DISCUSSION

Wind data for the first 216 feet above the surface were obtained from a system composed of 5 Aerovanes mounted on a 200-foot tower and cabled to component indicators.

From 216 to 4,000 feet above the surface, wind data were obtained from double-theodolite-observed balloon ascents.

Temperature, pressure, and humidity data, along with upper wind data from 4,000 to 80,738 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and ballistic factors as a function of altitude were provided by ASL, and are the basis for data appearing in Table VIII.

| | | | |
|-----------------------|----------|---------|--------------|
| PAYLOAD | | 21.0 | Pounds |
| CORIOLOS DISPLACEMENT | WEST | 5.0 | Miles |
| SECOND-STAGE IGNITION | TIME | 20.2 | Seconds |
| | ALTITUDE | 36,252 | Feet MSL |
| PEAK | TIME | 236.2 | Seconds |
| | ALTITUDE | 723,966 | Feet MSL |
| UNIT WIND EFFECT | | | Miles/MPH |
| | | 2.25 | Miles/MPH |
| | | | Miles/MPH |
| TOWER TILT EFFECT | | 14.2 | Miles/Degree |

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES
NIKE-HYDAC, MK 12 STV (SR-039)

| LAYERS IN FEET ABOVE GROUND | BALLISTIC FACTORS |
|--------------------------------|----------------------|
| 11- 60 | .138 |
| 60- 108 | .094 |
| 108- 148 | .059 |
| 148- 184 | .043 |
| 184- 216 | .031 |
| 216- 300 | .066 |
| 300- 400 | .058 |
| 400- 600 | .080 |
| 600- 800 | .060 |
| 800-1000 | .050 |

| LAYERS IN FEET ABOVE GROUND | BALLISTIC FACTORS |
|--------------------------------|----------------------|
| 1000- 1400 | .075 |
| 1400- 2000 | .069 |
| 2000- 2500 | .035 |
| 2500- 3000 | .024 |
| 3000- 4000 | .019 |
| 4000- 4315 | .001 |
| 4315- 9000 | .015 |
| 9000-15000 | .018 |
| 15000-21000 | .016 |
| 21000-26000 | .014 |

| LAYERS IN FEET ABOVE GROUND | BALLISTIC FACTORS |
|--------------------------------|----------------------|
| 26000-31975 | .005 |
| 31975-34000 | .007 |
| 34000-36000 | .033 |
| 36000-41000 | .036 |
| 41000-46000 | .013 |
| 46000-51000 | .006 |
| 51000-56000 | .004 |
| 56000-61000 | .003 |
| 61000-66000 | .002 |
| 66000-72738 | .001 |

TABLE II. BALLISTIC FACTORS
NIKE-HYDAC, MK 12 STV (SR-039)

| AERO- VANE NO. * | MEAN WIND COMPONENTS IN MILES PER HOUR | | | | | | | | | |
|------------------------|--|------|---------------|------|---------------|------|---------------|------|---------------|------|
| | 1 0600 MST | | 2 0630 MST | | 3 0700 MST | | 4 0715 MST | | 5 0730 MST | |
| | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W |
| | | | | | | | | | | |
| 1 | 4.0N | 1.0E | 1.0N | 0.0 | 0.0 | 1.0E | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | 6.0 | 1.0 | 3.0 | 2.0E | 1.0N | 2.0 | 1.0N | 1.0W | 1.0N | 1.0W |
| 3 | 5.0 | 1.0 | 4.0 | 0.0 | 2.0 | 2.0 | 0.0 | 2.0E | 0.0 | 2.0E |
| 4 | 8.0 | 1.0 | 6.0 | 0.0 | 4.0 | 3.0 | 1.0N | 4.0 | 2.0N | 3.0 |
| 5 | 10.0 | 1.0 | 6.0 | 0.0 | 9.0 | 3.0 | 4.0 | 4.0 | 1.0 | 1.0 |

| AERO- VANE NO. * | MEAN WIND COMPONENTS IN MILES PER HOUR | | | | | | | | | |
|------------------------|--|------|---------------|------|---------------|------|---------------|------|--------------------|------|
| | 6 0740 MST | | 7 0750 MST | | 8 0800 MST | | 9 0818 MST | | T-TIME 0825 MST | |
| | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W |
| 1 | 0.0 | 0.0 | 5.0S | 1.0E | 7.0S | 2.0E | 5.0S | 2.0E | 4.0S | 1.0E |
| 2 | 1.0N | 2.0W | 4.0 | 1.0W | 7.0 | 1.0W | 5.0 | 2.0W | 3.0 | 2.0W |
| 3 | 0.0 | 1.0 | 4.0 | 1.0E | 7.0 | 0.0 | 5.0 | 0.0 | 4.0 | 1.0 |
| 4 | 1.0S | 0.0 | 5.0 | 2.0 | 7.0 | 2.0E | 5.0 | 2.0E | 5.0 | 1.0E |
| 5 | 2.0N | 3.0W | 1.0 | 1.0 | 4.0 | 1.0 | 1.0S | 2.0W | 2.0 | 2.0W |

TABLE III. ANEMOMETER WIND SPEED AND DIRECTION
NIKE-HYDAC, MK 12 STV (SR-039)

* Heights corresponding to Aerovane Numbers: 1 = 35 Feet 3 = 128 Feet 5 = 200 Feet
2 = 88 Feet 4 = 168 Feet

| LAYERS IN FEET ABOVE GROUND | MEAN WIND COMPONENTS IN MILES PER HOUR | | | | | | | | | |
|--------------------------------------|--|------|---------------|------|---------------|------|---------------|------|---------------|------|
| | 1 0600 MST | | 2 0630 MST | | 3 0700 MST | | 4 0715 MST | | 5 0730 MST | |
| | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W |
| | | | | | | | | | | |
| 216- 300 | 9.5N | 0.0 | 6.5N | 0.5E | 9.0N | 3.0E | 4.5N | 4.0E | 2.0N | 0.5E |
| 300- 400 | 8.5 | 3.0W | 6.5 | 0.5 | 8.0 | 2.5 | 5.5 | 3.5 | 3.0 | 0.5W |
| 400- 600 | 7.0 | 4.5 | 6.5 | 1.0 | 7.5 | 1.0 | 6.0 | 2.5 | 4.0 | 1.5 |
| 600- 800 | 6.0 | 5.5 | 6.5 | 0.0 | 7.0 | 0.5W | 6.0 | 0.5 | 4.5 | 7.5 |
| 800-1000 | 5.0 | 6.5 | 6.0 | 1.0W | 6.5 | 2.5 | 5.5 | 0.5W | 5.0 | 4.0 |
| 1000-1400 | 5.0 | 10.0 | 4.5 | 7.0 | 5.0 | 4.0 | 5.5 | 2.0 | 5.0 | 6.5 |
| 1400-2000 | 6.5 | 14.0 | 6.5 | 15.0 | 5.5 | 9.5 | 6.0 | 5.5 | 5.0 | 8.0 |
| 2000-2500 | 7.0 | 17.5 | 10.5 | 22.0 | 5.5 | 17.0 | 6.5 | 11.5 | 6.0 | 12.0 |
| 2500-3000 | 5.5 | 22.0 | 9.0 | 23.5 | 6.0 | 21.5 | 7.5 | 19.0 | 7.0 | 15.5 |
| 3000-4000 | 3.5 | 30.0 | 5.0 | 21.5 | 4.0 | 24.5 | 6.0 | 23.0 | 5.5 | 20.0 |

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA
NIKE-HYDAC, MK 12 STV (SR-039)

| LAYERS IN FEET ABOVE GROUND | MEAN WIND COMPONENTS IN MILES PER HOUR | | | | | | | | | |
|--------------------------------------|--|------|----------|------|----------|------|----------|------|----------|------|
| | 6 | | 7 | | 8 | | 9 | | 20 | |
| | 0710 MST | | 0750 MST | | 0800 MST | | 0810 MST | | 0832 MST | |
| | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W |
| 216- 300 | 3.0W | 1.5W | 0.5N | 1.5W | 3.0W | 2.0W | 4.0N | 1.0W | 2.0N | 1.0W |
| 300- 400 | 4.0 | 0.5W | 0.0 | 3.0 | 1.5 | 4.0 | 0.5N | 2.5W | 2.5 | 0.0 |
| 400- 600 | 4.0 | 1.0 | 1.5N | 3.5 | 1.0W | 5.0 | 3.0 | 4.0 | 2.5 | 2.0W |
| 600- 800 | 5.0 | 0.5W | 3.5 | 2.0 | 3.0 | 3.5 | 5.0 | 3.0 | 0.5N | 3.0 |
| 800-1000 | 5.0 | 2.0 | 5.0 | 6.0 | 4.0 | 2.0 | 7.0 | 3.0 | 3.5 | 2.5 |
| 1000-1100 | 5.0 | 4.5 | 4.0 | 2.0W | 3.5 | 1.5W | 6.5 | 2.0 | 5.5 | 1.0W |
| 1100-2000 | 4.0 | 10.0 | 4.0 | 5.5 | 4.0 | 5.0 | 3.0 | 7.0W | 5.0 | 7.0 |
| 2000-2500 | 5.0 | 13.0 | 4.5 | 7.5 | 4.0 | 8.0 | 4.0 | 4.5 | 4.0 | 9.5 |
| 2500-3000 | 5.5 | 15.0 | 5.5 | 13.5 | 4.5 | 12.5 | 7.0 | 24.0 | 5.0 | 12.5 |
| 3000-4000 | 6.5 | 20.0 | 5.5 | 18.5 | 5.5 | 17.5 | 5.5 | 16.0 | 6.0 | 15.5 |

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA (cont.)
HKN-JNDAG, MK 12 (11-039)

| LAYERS IN FEET ABOVE GROUND | MEAN WIND COMPONENTS IN KNOTS | | | | | |
|--------------------------------------|-------------------------------|-------|---------------|------|-----|-----|
| | 1 0500 MST | | 2 0827 MST | | | |
| | N-S | E-W | N-S | E-W | N-S | E-W |
| 0000-0315 | 4.0N | 11.5W | 6.0N | 6.0W | | |
| 0315-1200 | 18.5 | 14.5 | 0.0 | 9.0 | | |
| 1200-1700 | 2.0N | 11.0 | 2.5S | 8.0 | | |
| 1700-2500 | 3.0N | 14.5 | 3.0 | 16.5 | | |
| 2500-3000 | 4.0 | 22.5 | 8.0 | 21.5 | | |
| 3000-35275 | 8.0 | 22.5 | 8.5 | 23.0 | | |
| 35275-38000 | 16.5 | 28.5 | 0.0 | 31.0 | | |
| 38000-40000 | 18.5 | 32.0 | 5.5N | 30.5 | | |
| 40000-45000 | 13.5 | 36.5 | 0.0 | 33.0 | | |
| 45000-50000 | 5.5S | 32.5 | 0.0 | 25.0 | | |
| 50000-55000 | 0.0 | 27.0 | 0.0 | 18.0 | | |
| 55000-60000 | 9.0 | 17.0 | 4.0N | 10.5 | | |
| 60000-65000 | 11.0N | 13.0 | TERMINATED | | | |
| 65000-70000 | 6.0 | 3.5 | | | | |
| 70000-76738 | 4.0 | 3.0 | | | | |

TABLE V. RAWINSONDE-MEASURED WIND DATA
WIND VECTOR FOR 2.5 AMP / ON 6200

STATION ALTITUDE 3989.0 FEET MSL
27 SEPT. 66 0500 HRS MST
ASCENSION NO. 745

UPPER AIR DATA
0027003903
WHITE SANDS SITE
TABLE VI

WSTM SITE COORDINATES
E 488,580 FEET
N 185,043 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | | WIND DATA DIRECTION DEGREES(TN) | SPEED KNOTS | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|----------------------------|-------|---------------------------------------|----------------|----------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | | | | | | |
| 3989.0 | 874.9 | 14.2 | 5.9 | 57.0 | 1056.6 | 661.4 | 0. | 0. | 0. | 1.000278 | |
| 4000.0 | 874.6 | 14.5 | 5.9 | 56.1 | 1055.2 | 661.7 | 359.5 | 0.1 | 0.1 | 1.000278 | |
| 4500.0 | 859.2 | 22.8 | 3.8 | 28.8 | 1008.0 | 671.0 | 338.5 | 5.9 | 5.9 | 1.000259 | |
| 5000.0 | 844.2 | 22.3 | 2.6 | 27.2 | 992.2 | 670.4 | 317.5 | 11.7 | 11.7 | 1.000253 | |
| 5500.0 | 829.3 | 21.0 | 1.6 | 27.5 | 979.1 | 668.9 | 296.4 | 17.5 | 17.5 | 1.000248 | |
| 6000.0 | 814.7 | 19.8 | 0.7 | 27.8 | 966.2 | 667.4 | 279.9 | 21.9 | 21.9 | 1.000244 | |
| 6500.0 | 800.4 | 18.5 | -0.3 | 28.1 | 953.5 | 665.9 | 280.0 | 21.3 | 21.3 | 1.000239 | |
| 7000.0 | 786.3 | 17.2 | -1.3 | 28.4 | 941.0 | 664.4 | 281.0 | 19.4 | 19.4 | 1.000235 | |
| 7500.0 | 772.4 | 15.9 | -2.2 | 28.7 | 928.6 | 662.9 | 282.7 | 16.3 | 16.3 | 1.000230 | |
| 8000.0 | 758.9 | 14.7 | -3.2 | 28.9 | 916.4 | 661.4 | 288.4 | 13.5 | 13.5 | 1.000226 | |
| 8500.0 | 745.2 | 13.2 | -3.3 | 31.4 | 904.4 | 659.8 | 295.3 | 10.7 | 10.7 | 1.000224 | |
| 9000.0 | 731.7 | 11.8 | -3.4 | 34.4 | 892.5 | 658.1 | 303.7 | 8.1 | 8.1 | 1.000221 | |
| 9500.0 | 718.5 | 10.3 | -3.6 | 37.5 | 880.9 | 656.4 | 310.3 | 8.0 | 8.0 | 1.000218 | |
| 10000.0 | 705.5 | 8.9 | -3.8 | 40.5 | 869.4 | 654.7 | 313.6 | 8.1 | 8.1 | 1.000216 | |
| 10500.0 | 692.7 | 7.4 | -4.2 | 43.6 | 858.2 | 653.0 | 314.0 | 7.3 | 7.3 | 1.000213 | |
| 11000.0 | 679.9 | 6.1 | -4.4 | 47.0 | 846.3 | 651.4 | 312.7 | 6.2 | 6.2 | 1.000210 | |
| 11500.0 | 667.3 | 4.7 | -4.7 | 50.5 | 834.6 | 649.9 | 302.4 | 4.8 | 4.8 | 1.000207 | |
| 12000.0 | 654.9 | 3.4 | -5.0 | 54.1 | 823.0 | 648.4 | 289.6 | 3.4 | 3.4 | 1.000204 | |
| 12500.0 | 642.7 | 2.1 | -5.4 | 57.6 | 811.6 | 646.8 | 266.3 | 3.1 | 3.1 | 1.000201 | |
| 13000.0 | 630.8 | 0.8 | -5.9 | 61.1 | 800.4 | 645.2 | 247.5 | 3.0 | 3.0 | 1.000198 | |
| 13500.0 | 619.1 | -0.3 | -7.6 | 57.9 | 788.8 | 643.9 | 240.1 | 3.9 | 3.9 | 1.000193 | |
| 14000.0 | 607.4 | -1.0 | -13.1 | 39.3 | 776.4 | 642.8 | 238.0 | 5.1 | 5.1 | 1.000184 | |
| 14500.0 | 595.9 | -2.0 | -17.1 | 30.5 | 764.8 | 641.5 | 242.2 | 6.7 | 6.7 | 1.000179 | |
| 15000.0 | 584.6 | -3.0 | -21.9 | 21.8 | 753.3 | 640.2 | 247.2 | 8.0 | 8.0 | 1.000173 | |
| 15500.0 | 573.4 | -4.2 | -24.7 | 18.7 | 742.5 | 638.7 | 252.7 | 9.3 | 9.3 | 1.000170 | |
| 16000.0 | 562.4 | -5.6 | -26.0 | 18.3 | 732.0 | 637.1 | 257.6 | 10.2 | 10.2 | 1.000167 | |
| 16500.0 | 551.6 | -6.7 | -27.2 | 17.9 | 720.9 | 635.8 | 262.2 | 10.9 | 10.9 | 1.000164 | |
| 17000.0 | 540.9 | -7.2 | -27.7 | 17.8 | 708.4 | 635.1 | 269.7 | 11.4 | 11.4 | 1.000161 | |
| 17500.0 | 530.4 | -7.8 | -28.3 | 17.6 | 696.1 | 634.4 | 277.6 | 11.8 | 11.8 | 1.000158 | |
| 18000.0 | 520.1 | -8.3 | -28.9 | 17.4 | 684.0 | 633.8 | 279.8 | 13.4 | 13.4 | 1.000155 | |

STATION ALTITUDE 3989.0 FEET MSL
27 SEPT.66 0500 HRS MST
ASCENSION NO. 745

UPPER AIR DATA
0027003903
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL.HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA DIRECTION DEGREES(TN) | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|------------------------------|------------------------|---------------------|------------------------------|-------------------|-------|---------------------------------------|----------------|---------------------------|
| | | AIR DEGREES CENTIGRADE | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | | | |
| 33500.0 | 271.7 | -43.5 | -50.3 | 48.0 | 442.1 | 590.1 | 295.2 | 295.2 | 23.6 | 1.0000092 |
| 34000.0 | 265.5 | -44.8 | -52.1 | 44.3** | 405.0 | 588.5 | 297.9 | 297.9 | 23.6 | 1.0000091 |
| 34500.0 | 259.4 | -46.1 | -54.3 | 39.5** | 398.1 | 586.7 | 299.7 | 299.7 | 24.8 | 1.0000089 |
| 35000.0 | 253.4 | -47.5 | -56.6 | 34.8** | 391.3 | 584.9 | 301.2 | 301.2 | 26.2 | 1.0000087 |
| 35500.0 | 247.6 | -48.9 | -59.0 | 30.0** | 384.6 | 583.2 | 300.8 | 300.8 | 27.4 | 1.0000086 |
| 36000.0 | 241.9 | -50.2 | -61.6 | 25.2** | 378.1 | 581.4 | 300.5 | 300.5 | 29.7 | 1.0000084 |
| 36500.0 | 236.3 | -51.6 | -64.4 | 20.4** | 371.6 | 579.6 | 300.6 | 300.6 | 33.8 | 1.0000083 |
| 37000.0 | 230.9 | -53.0 | -67.5 | 15.6** | 365.3 | 577.8 | 300.5 | 300.5 | 36.0 | 1.0000081 |
| 37500.0 | 225.6 | -54.3 | -71.2 | 10.8** | 359.1 | 576.0 | 300.2 | 300.2 | 37.2 | 1.0000080 |
| 38000.0 | 220.4 | -55.7 | -76.1 | 6.0** | 353.1 | 574.2 | 299.8 | 299.8 | 39.2 | 1.0000079 |
| 38500.0 | 215.3 | -57.0 | -86.6 | 1.2** | 347.1 | 572.4 | 299.3 | 299.3 | 41.0 | 1.0000077 |
| 39000.0 | 210.2 | -58.1 | 0. | -0. ** | 340.6 | 571.0 | 297.9 | 297.9 | 39.8 | 1.0000076 |
| 39500.0 | 205.1 | -59.1 | 0. | -0. ** | 333.9 | 569.6 | 296.4 | 296.4 | 38.8 | 1.0000074 |
| 40000.0 | 200.2 | -60.1 | 0. | -0. ** | 327.4 | 568.3 | 294.6 | 294.6 | 38.2 | 1.0000073 |
| 40500.0 | 195.3 | -61.1 | 0. | -0. ** | 321.0 | 567.0 | 293.2 | 293.2 | 37.5 | 1.0000071 |
| 41000.0 | 190.6 | -62.1 | 0. | -0. ** | 314.8 | 565.6 | 292.0 | 292.0 | 36.8 | 1.0000070 |
| 41500.0 | 186.1 | -63.1 | 0. | -0. ** | 308.7 | 564.3 | 292.5 | 292.5 | 37.5 | 1.0000069 |
| 42000.0 | 181.5 | -63.6 | 0. | -0. ** | 301.8 | 563.7 | 293.1 | 293.1 | 38.2 | 1.0000067 |
| 42500.0 | 177.1 | -63.6 | 0. | -0. ** | 294.5 | 563.7 | 293.7 | 293.7 | 38.6 | 1.0000066 |
| 43000.0 | 172.8 | -63.6 | 0. | -0. ** | 287.3 | 563.7 | 293.5 | 293.5 | 38.4 | 1.0000064 |
| 43500.0 | 168.6 | -63.6 | 0. | -0. ** | 280.3 | 563.7 | 292.3 | 292.3 | 37.6 | 1.0000062 |
| 44000.0 | 164.4 | -63.6 | 0. | -0. ** | 273.4 | 563.7 | 287.5 | 287.5 | 35.8 | 1.0000061 |
| 44500.0 | 160.4 | -63.6 | 0. | -0. ** | 266.7 | 563.7 | 280.7 | 280.7 | 33.3 | 1.0000059 |
| 45000.0 | 156.5 | -63.6 | 0. | -0. ** | 260.2 | 563.7 | 274.4 | 274.4 | 33.6 | 1.0000058 |
| 45500.0 | 152.7 | -63.6 | 0. | -0. ** | 253.9 | 563.7 | 268.2 | 268.2 | 34.6 | 1.0000057 |
| 46000.0 | 149.0 | -63.6 | 0. | -0. ** | 247.7 | 563.7 | 263.6 | 263.6 | 35.2 | 1.0000055 |
| 46500.0 | 145.3 | -63.6 | 0. | -0. ** | 241.6 | 563.7 | 260.6 | 260.6 | 35.9 | 1.0000054 |
| 47000.0 | 141.8 | -63.6 | 0. | -0. ** | 235.7 | 563.7 | 261.6 | 261.6 | 36.9 | 1.0000052 |
| 47500.0 | 138.3 | -63.6 | 0. | -0. ** | 230.0 | 563.7 | 262.2 | 262.2 | 36.2 | 1.0000051 |
| 48000.0 | 134.9 | -63.6 | 0. | -0. ** | 224.4 | 563.7 | 262.3 | 262.3 | 33.8 | 1.0000050 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
 27 SEPT.66 0500 HRS MST
 ASCENSION NO. 745

UPPER AIR DATA
 0027003903
 WHITE SANDS SITE
 TABLE VI (Cont)

WSTM SITE COORDINATES
 E 488,580 FEET
 N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES(TN) | SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|--|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 48500.0 | 131.6 | -63.6 | -0. ** | 218.9 | 563.7 | 261.7 | 32.0 | 1.000049 |
| 49000.0 | 128.4 | -63.6 | -0. ** | 213.5 | 563.7 | 260.9 | 30.3 | 1.000048 |
| 49500.0 | 125.3 | -63.6 | -0. ** | 208.3 | 563.7 | 260.3 | 28.7 | 1.000046 |
| 50000.0 | 122.2 | -63.8 | -0. ** | 203.4 | 563.4 | 259.7 | 27.1 | 1.000045 |
| 50500.0 | 119.2 | -64.4 | -0. ** | 199.0 | 562.5 | 261.2 | 27.5 | 1.000044 |
| 51000.0 | 116.3 | -65.1 | -0. ** | 194.8 | 561.6 | 262.8 | 27.7 | 1.000043 |
| 51500.0 | 113.4 | -65.8 | -0. ** | 190.6 | 560.7 | 265.4 | 27.5 | 1.000042 |
| 52000.0 | 110.6 | -66.4 | -0. ** | 186.5 | 559.8 | 267.6 | 27.3 | 1.000042 |
| 52500.0 | 107.9 | -66.5 | -0. ** | 182.0 | 559.7 | 268.8 | 27.1 | 1.000041 |
| 53000.0 | 105.3 | -66.5 | -0. ** | 177.4 | 559.8 | 269.9 | 26.6 | 1.000040 |
| 53500.0 | 102.7 | -66.4 | -0. ** | 173.0 | 559.9 | 270.8 | 25.5 | 1.000039 |
| 54000.0 | 100.1 | -66.3 | -0. ** | 168.6 | 560.0 | 272.6 | 24.6 | 1.000038 |
| 54500.0 | 97.6 | -66.2 | -0. ** | 164.4 | 560.1 | 274.9 | 23.8 | 1.000037 |
| 55000.0 | 95.2 | -66.1 | -0. ** | 160.3 | 560.3 | 275.4 | 23.2 | 1.000036 |
| 55500.0 | 92.9 | -66.0 | -0. ** | 156.3 | 560.4 | 275.0 | 22.8 | 1.000035 |
| 56000.0 | 90.6 | -66.0 | -0. ** | 152.3 | 560.5 | 275.2 | 20.7 | 1.000034 |
| 56500.0 | 88.4 | -65.9 | -0. ** | 148.5 | 560.6 | 275.3 | 18.4 | 1.000033 |
| 57000.0 | 86.2 | -65.8 | -0. ** | 144.8 | 560.7 | 274.1 | 16.1 | 1.000032 |
| 57500.0 | 84.0 | -65.7 | -0. ** | 141.2 | 560.8 | 275.5 | 13.7 | 1.000031 |
| 58000.0 | 82.0 | -65.2 | -0. ** | 137.4 | 561.5 | 282.8 | 11.4 | 1.000031 |
| 58500.0 | 80.0 | -64.7 | -0. ** | 133.8 | 562.2 | 288.2 | 10.8 | 1.000030 |
| 59000.0 | 78.1 | -64.2 | -0. ** | 130.3 | 562.8 | 291.3 | 12.3 | 1.000029 |
| 59500.0 | 76.2 | -63.7 | -0. ** | 126.8 | 563.5 | 294.9 | 13.5 | 1.000028 |
| 60000.0 | 74.4 | -63.2 | -0. ** | 123.5 | 564.2 | 299.3 | 14.2 | 1.000027 |
| 60500.0 | 72.6 | -62.7 | -0. ** | 120.2 | 564.8 | 302.4 | 15.2 | 1.000027 |
| 61000.0 | 70.9 | -62.2 | -0. ** | 117.0 | 565.5 | 303.6 | 16.7 | 1.000026 |
| 61500.0 | 69.1 | -61.7 | -0. ** | 114.0 | 566.2 | 305.3 | 17.5 | 1.000025 |
| 62000.0 | 67.5 | -61.2 | -0. ** | 110.9 | 566.8 | 307.8 | 17.0 | 1.000025 |
| 62500.0 | 65.9 | -60.7 | -0. ** | 108.0 | 567.5 | 309.1 | 16.6 | 1.000024 |
| 63000.0 | 64.3 | -60.2 | -0. ** | 105.2 | 568.2 | 307.8 | 16.6 | 1.000023 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
27 SEPT.66 0500 HRS MST
ASCENSION NO. 745

UPPER AIR DATA
0027003903
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 489.580 FEET
N 185.045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|-------|--------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES(TN) | SPEED KNOTS | |
| 63500.0 | 62.7 | -59.7 | 0. | -0. ** | 102.4 | 568.8 | | 309.8 | 16.0 | 1.000023 |
| 64000.0 | 61.2 | -59.2 | 0. | -0. ** | 99.7 | 569.5 | | 310.9 | 14.0 | 1.000022 |
| 64500.0 | 59.7 | -58.7 | 0. | -0. ** | 97.1 | 570.2 | | 329.0 | 11.9 | 1.000022 |
| 65000.0 | 58.3 | -58.2 | 0. | -0. ** | 94.5 | 570.8 | | 341.1 | 9.7 | 1.000021 |
| 65500.0 | 56.9 | -57.7 | 0. | -0. ** | 92.0 | 571.5 | | 348.1 | 8.0 | 1.000020 |
| 66000.0 | 55.5 | -57.2 | 0. | -0. ** | 89.6 | 572.1 | | 348.2 | 7.1 | 1.000020 |
| 66500.0 | 54.2 | -56.8 | 0. | -0. ** | 87.2 | 572.8 | | 334.8 | 6.3 | 1.000019 |
| 67000.0 | 52.9 | -56.3 | 0. | -0. ** | 85.0 | 573.4 | | 305.6 | 5.7 | 1.000019 |
| 67500.0 | 51.6 | -56.4 | 0. | -0. ** | 83.0 | 573.3 | | 283.1 | 5.7 | 1.000018 |
| 68000.0 | 50.4 | -56.4 | 0. | -0. ** | 81.1 | 573.2 | | 278.8 | 7.2 | 1.000018 |
| 68500.0 | 49.2 | -56.5 | 0. | -0. ** | 79.2 | 573.2 | | 274.4 | 8.7 | 1.000018 |
| 69000.0 | 48.1 | -56.5 | 0. | -0. ** | 77.3 | 573.1 | | 273.2 | 8.8 | 1.000017 |
| 69500.0 | 46.9 | -56.6 | 0. | -0. ** | 75.5 | 573.0 | | 272.8 | 8.5 | 1.000017 |
| 70000.0 | 45.8 | -56.6 | 0. | -0. ** | 73.8 | 572.9 | | 273.7 | 8.2 | 1.000016 |
| 70500.0 | 44.7 | -56.7 | 0. | -0. ** | 72.0 | 572.9 | | 278.4 | 7.8 | 1.000016 |
| 71000.0 | 43.7 | -56.8 | 0. | -0. ** | 70.4 | 572.8 | | 283.0 | 7.3 | 1.000016 |
| 71500.0 | 42.7 | -56.7 | 0. | -0. ** | 68.7 | 572.9 | | 287.7 | 7.5 | 1.000015 |
| 72000.0 | 41.7 | -56.3 | 0. | -0. ** | 67.0 | 573.4 | | 292.4 | 7.9 | 1.000015 |
| 72500.0 | 40.7 | -56.0 | 0. | -0. ** | 65.3 | 573.8 | | 297.8 | 8.2 | 1.000015 |
| 73000.0 | 39.8 | -55.6 | 0. | -0. ** | 63.7 | 574.3 | | 306.7 | 7.3 | 1.000014 |
| 73500.0 | 38.8 | -55.2 | 0. | -0. ** | 62.1 | 574.8 | | 315.5 | 6.5 | 1.000014 |
| 74000.0 | 37.9 | -54.9 | 0. | -0. ** | 60.6 | 575.3 | | 323.5 | 5.7 | 1.000013 |
| 74500.0 | 37.1 | -54.5 | 0. | -0. ** | 59.0 | 575.8 | | 331.0 | 4.9 | 1.000013 |
| 75000.0 | 36.2 | -54.1 | 0. | -0. ** | 57.6 | 576.2 | | 337.3 | 4.1 | 1.000013 |
| 75500.0 | 35.4 | -53.8 | 0. | -0. ** | 56.1 | 576.7 | | 340.0 | 3.1 | 1.000013 |
| 76000.0 | 34.5 | -53.4 | 0. | -0. ** | 54.8 | 577.2 | | 342.8 | 2.1 | 1.000012 |
| 76500.0 | 33.7 | -53.1 | 0. | -0. ** | 53.4 | 577.7 | | 317.7 | 1.3 | 1.000012 |
| 77000.0 | 32.9 | -52.7 | 0. | -0. ** | 52.1 | 578.1 | | 292.1 | 0.5 | 1.000012 |
| 77500.0 | 32.2 | -52.3 | 0. | -0. ** | 50.8 | 578.6 | | 284.7 | 0.6 | 1.000011 |
| 78000.0 | 31.4 | -52.0 | 0. | -0. ** | 49.5 | 579.1 | | 284.7 | 1.0 | 1.000011 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
27 SEPT.66 0500 HRS MST
ASCENSION NO. 745

UPPER AIR DATA
0027003903
WHITE SANDS SITE
TABLE VI (Cont)

WSYM SITE COORDINATES
E 480,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL.HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|---------------------|------------------------------|-------------------|-------|--------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES(TN) | SPEED KNOTS | |
| 78500.0 | 30.7 | -51.6 | 0. | -0. ** | 48.3 | 579.6 | 250.1 | 1.2 | 1.000011 | |
| 79000.0 | 30.0 | -51.3 | 0. | -0. ** | 47.1 | 580.0 | 170.9 | 1.1 | 1.000010 | |
| 79500.0 | 29.3 | -50.9 | 0. | -0. ** | 45.9 | 580.5 | 117.7 | 1.0 | 1.000010 | |
| 80000.0 | 28.6 | -50.5 | 0. | -0. ** | 44.8 | 581.0 | 196.4 | 0.7 | 1.000010 | |
| 80500.0 | 27.9 | -50.2 | 0. | -0. ** | 43.7 | 581.4 | 275.2 | 0.5 | 1.000010 | |
| 81000.0 | 27.3 | -50.1 | 0. | -0. ** | 42.7 | 581.5 | 352.7 | 0.4 | 1.000009 | |
| 81500.0 | 26.7 | -50.0 | 0. | -0. ** | 41.7 | 581.6 | 70.0 | 0.4 | 1.000009 | |
| 82000.0 | 26.1 | -50.0 | 0. | -0. ** | 40.7 | 581.7 | 70.2 | 0.7 | 1.000009 | |
| 82500.0 | 25.5 | -49.9 | 0. | -0. ** | 39.8 | 581.8 | 7.6 | 1.4 | 1.000009 | |
| 83000.0 | 24.9 | -49.8 | 0. | -0. ** | 38.8 | 581.9 | 313.3 | 2.0 | 1.000009 | |
| 83500.0 | 24.3 | -49.7 | 0. | -0. ** | 37.9 | 582.0 | 334.3 | 2.3 | 1.000008 | |
| 84000.0 | 23.8 | -49.7 | 0. | -0. ** | 37.1 | 582.1 | 355.3 | 2.5 | 1.000008 | |
| 84500.0 | 23.2 | -49.6 | 0. | -0. ** | 36.2 | 582.2 | 3.4 | 2.7 | 1.000008 | |
| 85000.0 | 22.7 | -49.5 | 0. | -0. ** | 35.4 | 582.3 | 1.4 | | 1.000008 | |
| 85500.0 | 22.2 | -49.4 | 0. | -0. ** | 34.5 | 582.4 | | | 1.000008 | |
| 86000.0 | 21.7 | -49.4 | 0. | -0. ** | 33.7 | 582.5 | | | 1.000008 | |
| 86500.0 | 21.2 | -49.3 | 0. | -0. ** | 33.0 | 582.6 | | | 1.000007 | |
| 87000.0 | 20.7 | -49.2 | 0. | -0. ** | 32.2 | 582.7 | | | 1.000007 | |
| 87500.0 | 20.2 | -49.1 | 0. | -0. ** | 31.5 | 582.8 | | | 1.000007 | |
| 88000.0 | 19.8 | -49.0 | 0. | -0. ** | 30.7 | 582.9 | | | 1.000007 | |

13

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
27 SEPT. 66 0827 HRS MST
ASCENSION NO. 746

UPPER AIR DATA
0027003904
WHITE SANDS SITE
TABLE VII

WSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|-------|--------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES(TW) | SPEED KNOTS | |
| 3989.0 | 876.5 | 21.8 | 7.3 | 39.0 | 1030.8 | 670.2 | 180.0 | 180.0 | 1.9 | 1.000274 |
| 4000.0 | 876.2 | 21.7 | 7.1 | 38.8 | 1030.8 | 670.1 | 180.7 | 180.7 | 2.0 | 1.000274 |
| 4500.0 | 860.8 | 20.0 | 2.6 | 31.4 | 1019.8 | 667.8 | 212.2 | 212.2 | 3.7 | 1.000260 |
| 5000.0 | 845.8 | 22.0 | 3.7 | 30.0 | 993.0 | 670.1 | 243.8 | 243.8 | 5.4 | 1.000256 |
| 5500.0 | 830.7 | 20.7 | 2.6 | 30.1 | 981.7 | 668.6 | 275.3 | 275.3 | 7.1 | 1.000251 |
| 6000.0 | 815.9 | 19.4 | 1.5 | 30.2 | 968.5 | 667.1 | 298.6 | 298.6 | 9.0 | 1.000246 |
| 6500.0 | 801.4 | 18.2 | 0.5 | 30.3 | 955.6 | 665.6 | 293.6 | 293.6 | 12.0 | 1.000241 |
| 7000.0 | 787.1 | 16.9 | -0.6 | 30.4 | 942.9 | 664.1 | 290.8 | 290.8 | 14.1 | 1.000236 |
| 7500.0 | 773.1 | 15.6 | -1.7 | 30.5 | 930.3 | 662.6 | 289.3 | 289.3 | 15.7 | 1.000232 |
| 8000.0 | 759.4 | 14.4 | -2.7 | 30.6 | 917.9 | 661.1 | 288.2 | 288.2 | 15.8 | 1.000227 |
| 8500.0 | 745.8 | 13.1 | -3.8 | 30.7 | 905.7 | 659.5 | 287.2 | 287.2 | 15.6 | 1.000223 |
| 9000.0 | 732.6 | 11.8 | -4.8 | 30.8 | 893.7 | 658.0 | 285.6 | 285.6 | 13.9 | 1.000219 |
| 9500.0 | 719.5 | 10.5 | -5.9 | 30.9 | 881.8 | 656.5 | 283.4 | 283.4 | 12.1 | 1.000215 |
| 10000.0 | 706.7 | 9.3 | -7.0 | 31.0 | 870.2 | 655.0 | 279.4 | 279.4 | 9.8 | 1.000211 |
| 10500.0 | 693.8 | 7.9 | -7.7 | 32.3 | 858.4 | 653.4 | 274.1 | 274.1 | 7.7 | 1.000208 |
| 11000.0 | 680.9 | 6.5 | -8.2 | 34.1 | 846.7 | 651.8 | 267.4 | 267.4 | 6.1 | 1.000205 |
| 11500.0 | 668.3 | 5.1 | -8.8 | 35.9 | 835.3 | 650.1 | 257.5 | 257.5 | 4.6 | 1.000202 |
| 12000.0 | 656.0 | 3.8 | -9.4 | 37.7 | 824.0 | 648.5 | 245.3 | 245.3 | 3.3 | 1.000198 |
| 12500.0 | 643.8 | 2.4 | -10.1 | 39.5 | 812.8 | 646.9 | 224.1 | 224.1 | 2.8 | 1.000195 |
| 13000.0 | 631.9 | 1.0 | -10.8 | 41.2 | 801.9 | 645.2 | 210.9 | 210.9 | 2.9 | 1.000192 |
| 13500.0 | 620.1 | 0.0 | -14.7 | 32.1 | 790.0 | 643.9 | 205.5 | 205.5 | 3.6 | 1.000186 |
| 14000.0 | 608.4 | -0.9 | -17.6 | 27.1 | 777.9 | 642.7 | 213.2 | 213.2 | 4.4 | 1.000181 |
| 14500.0 | 596.8 | -2.0 | -19.5 | 24.9 | 766.2 | 641.5 | 223.1 | 223.1 | 5.4 | 1.000177 |
| 15000.0 | 585.5 | -3.0 | -21.5 | 22.6 | 754.6 | 640.2 | 233.8 | 233.8 | 6.5 | 1.000174 |
| 15500.0 | 574.3 | -4.0 | -23.6 | 20.4 | 743.1 | 639.0 | 241.2 | 241.2 | 7.6 | 1.000170 |
| 16000.0 | 563.4 | -5.1 | -25.7 | 18.1 | 731.9 | 637.7 | 245.8 | 245.8 | 8.8 | 1.000167 |
| 16500.0 | 552.6 | -5.5 | -26.2 | 18.0 | 719.1 | 637.2 | 249.6 | 249.6 | 9.5 | 1.000164 |
| 17000.0 | 542.0 | -6.0 | -26.5 | 18.0 | 706.4 | 636.6 | 253.1 | 253.1 | 10.2 | 1.000161 |
| 17500.0 | 531.5 | -6.4 | -26.9 | 18.0 | 693.9 | 636.1 | 255.7 | 255.7 | 10.8 | 1.000158 |
| 18000.0 | 521.3 | -6.9 | -27.3 | 18.0 | 681.7 | 635.6 | 259.1 | 259.1 | 11.4 | 1.000155 |

UPPER AIR DATA
Q027003904
WHITE SANDS SITE
TABLE VII (Cont.)

STATION ALTITUDE 3989.0 FEET MSL
27 SEPT. 66 0827 HRS MST
ASCENSION NO. 746

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES DEWPOINT CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES(TN) | SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|--|----------------------|------------------------------|----------------------------|---------------------------------------|----------------|---------------------------|
| 18500.0 | 511.1 | -7.8 | 18.2 | 670.9 | 634.4 | 264.0 | 11.9 | 1.000153 |
| 19000.0 | 501.1 | -9.0 | 18.5 | 660.7 | 633.0 | 267.6 | 12.5 | 1.000150 |
| 19500.0 | 491.3 | -10.2 | 18.8 | 650.8 | 631.5 | 270.5 | 13.0 | 1.000146 |
| 20000.0 | 481.7 | -11.4 | 19.1 | 641.0 | 630.0 | 272.3 | 13.5 | 1.000145 |
| 20500.0 | 472.2 | -12.6 | 19.4 | 631.3 | 628.6 | 273.2 | 14.0 | 1.000143 |
| 21000.0 | 463.0 | -13.8 | 19.7 | 621.9 | 627.1 | 270.4 | 14.7 | 1.000141 |
| 21500.0 | 453.9 | -14.9 | 19.9 | 612.2 | 625.8 | 266.8 | 15.6 | 1.000139 |
| 22000.0 | 444.9 | -15.7 | 19.2 | 600.0 | 625.8 | 262.6 | 16.6 | 1.000136 |
| 22500.0 | 435.9 | -17.0 | 19.9 | 589.8 | 624.8 | 258.9 | 18.0 | 1.000133 |
| 23000.0 | 427.0 | -18.2 | 21.2 | 580.6 | 623.3 | 255.5 | 19.5 | 1.000131 |
| 23500.0 | 418.3 | -19.5 | 22.5 | 571.5 | 621.8 | 253.7 | 19.7 | 1.000129 |
| 24000.0 | 409.7 | -20.7 | 23.7 | 562.6 | 620.2 | 252.7 | 19.9 | 1.000127 |
| 24500.0 | 401.4 | -22.0 | 25.0 | 553.9 | 618.7 | 253.7 | 20.3 | 1.000125 |
| 25000.0 | 393.2 | -23.2 | 26.3 | 545.3 | 617.2 | 254.8 | 20.8 | 1.000123 |
| 25500.0 | 385.2 | -24.5 | 27.6 | 536.9 | 615.6 | 256.1 | 21.4 | 1.000121 |
| 26000.0 | 377.3 | -25.7 | 28.9 | 528.6 | 614.1 | 257.6 | 22.5 | 1.000119 |
| 26500.0 | 369.6 | -27.0 | 30.2 | 520.4 | 612.5 | 259.3 | 23.7 | 1.000117 |
| 27000.0 | 362.1 | -28.1 | 31.5 | 512.4 | 611.0 | 259.2 | 24.6 | 1.000115 |
| 27500.0 | 354.5 | -29.1 | 32.1 | 504.0 | 609.6 | 258.8 | 25.3 | 1.000113 |
| 28000.0 | 347.0 | -30.2 | 32.2 | 495.4 | 608.3 | 258.2 | 25.2 | 1.000111 |
| 28500.0 | 339.6 | -31.2 | 32.3 | 496.9 | 607.0 | 257.6 | 25.0 | 1.000109 |
| 29000.0 | 332.4 | -32.3 | 32.4 | 478.6 | 605.7 | 257.1 | 24.7 | 1.000108 |
| 29500.0 | 325.3 | -33.3 | 32.5 | 470.5 | 604.4 | 257.5 | 24.6 | 1.000106 |
| 30000.0 | 318.4 | -34.3 | 32.6 | 462.4 | 603.1 | 258.5 | 24.8 | 1.000104 |
| 30500.0 | 311.6 | -35.4 | 32.8 | 454.6 | 601.8 | 260.2 | 24.9 | 1.000102 |
| 31000.0 | 305.0 | -36.4 | 32.9 | 446.9 | 600.4 | 262.1 | 25.0 | 1.000100 |
| 31500.0 | 298.5 | -37.7 | 33.0 | 439.3 | 599.1 | 263.3 | 25.2 | 1.000098 |
| 32000.0 | 292.0 | -39.1 | 32.7 | 432.1 | 597.5 | 264.5 | 25.2 | 1.000097 |
| 32500.0 | 285.6 | -40.4 | 32.3 | 425.1 | 595.7 | 265.2 | 24.9 | 1.000095 |
| 33000.0 | 279.3 | | 31.7** | 418.2 | 594.0 | 265.5 | 24.9 | 1.000094 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
27 SEPT.66 0827 HRS MST
ASCENSION NO. 746

UPPER AIR DATA
0027003904
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DIRECTION DEGREES(TN) | SPEED KNOTS | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|-------|----------------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | | | |
| 33500.0 | 273.0 | -41.8 | -53.1 | 28.5** | 411.2 | 592.2 | 265.3 | 265.3 | 25.3 | 1.000092 |
| 34000.0 | 266.8 | -43.2 | -55.3 | 25.3** | 404.3 | 590.5 | 265.2 | 265.2 | 25.8 | 1.000090 |
| 34500.0 | 260.7 | -44.6 | -57.6 | 22.2** | 397.5 | 588.7 | 265.2 | 265.2 | 26.5 | 1.000089 |
| 35000.0 | 254.8 | -46.0 | -60.0 | 19.0** | 390.8 | 586.9 | 266.0 | 266.0 | 27.3 | 1.000087 |
| 35500.0 | 249.0 | -47.4 | -62.6 | 15.9** | 384.3 | 585.1 | 267.2 | 267.2 | 28.2 | 1.000086 |
| 36000.0 | 243.4 | -48.8 | -65.4 | 12.7** | 377.9 | 583.3 | 270.1 | 270.1 | 29.1 | 1.000084 |
| 36500.0 | 237.9 | -50.1 | -68.6 | 9.5** | 371.6 | 581.5 | 273.7 | 273.7 | 30.0 | 1.000083 |
| 37000.0 | 232.5 | -51.5 | -72.5 | 6.4** | 365.5 | 579.7 | 273.8 | 273.8 | 31.5 | 1.000081 |
| 37500.0 | 227.2 | -52.9 | -78.0 | 3.2** | 359.4 | 577.9 | 273.3 | 273.3 | 33.1 | 1.000080 |
| 38000.0 | 222.0 | -54.3 | -104.0 | 0.0** | 353.5 | 576.0 | 277.9 | 277.9 | 35.1 | 1.000079 |
| 38500.0 | 216.7 | -55.5 | 0. | -0. ** | 347.0 | 574.4 | 282.2 | 282.2 | 37.0 | 1.000077 |
| 39000.0 | 211.6 | -56.7 | 0. | -0. ** | 340.6 | 572.8 | 281.8 | 281.8 | 37.9 | 1.000076 |
| 39500.0 | 206.5 | -58.0 | 0. | -0. ** | 334.3 | 571.2 | 282.0 | 282.0 | 39.1 | 1.000074 |
| 40000.0 | 201.6 | -59.2 | 0. | -0. ** | 328.2 | 569.6 | 283.8 | 283.8 | 41.0 | 1.000073 |
| 40500.0 | 196.7 | -60.4 | 0. | -0. ** | 322.2 | 568.0 | 283.0 | 283.0 | 42.5 | 1.000072 |
| 41000.0 | 192.0 | -61.6 | 0. | -0. ** | 316.3 | 566.3 | 278.9 | 278.9 | 43.1 | 1.000070 |
| 41500.0 | 187.5 | -62.8 | 0. | -0. ** | 310.5 | 564.7 | 276.9 | 276.9 | 43.6 | 1.000069 |
| 42000.0 | 182.9 | -63.7 | 0. | -0. ** | 304.2 | 563.6 | 276.7 | 276.7 | 44.0 | 1.000068 |
| 42500.0 | 178.5 | -64.0 | 0. | -0. ** | 297.3 | 563.1 | 277.7 | 277.7 | 42.4 | 1.000066 |
| 43000.0 | 174.1 | -63.8 | 0. | -0. ** | 289.8 | 563.3 | 279.3 | 279.3 | 39.6 | 1.000065 |
| 43500.0 | 169.9 | -63.0 | 0. | -0. ** | 281.6 | 564.5 | 281.2 | 281.2 | 36.3 | 1.000063 |
| 44000.0 | 165.7 | -62.2 | 0. | -0. ** | 273.7 | 565.6 | 283.3 | 283.3 | 32.8 | 1.000061 |
| 44500.0 | 161.7 | -62.2 | 0. | -0. ** | 267.1 | 565.5 | 283.1 | 283.1 | 29.6 | 1.000059 |
| 45000.0 | 157.7 | -63.0 | 0. | -0. ** | 261.5 | 564.5 | 282.3 | 282.3 | 26.4 | 1.000058 |
| 45500.0 | 153.9 | -63.7 | 0. | -0. ** | 256.0 | 563.5 | 276.1 | 276.1 | 25.3 | 1.000057 |
| 46000.0 | 150.1 | -64.5 | 0. | -0. ** | 250.7 | 562.5 | 269.0 | 269.0 | 24.5 | 1.000056 |
| 46500.0 | 146.5 | -65.2 | 0. | -0. ** | 245.4 | 561.5 | 264.3 | 264.3 | 26.1 | 1.000055 |
| 47000.0 | 142.9 | -65.0 | 0. | -0. ** | 239.1 | 561.8 | 259.7 | 259.7 | 28.0 | 1.000053 |
| 47500.0 | 139.4 | -64.6 | 0. | -0. ** | 232.8 | 562.3 | 259.0 | 259.0 | 28.8 | 1.000052 |
| 48000.0 | 136.0 | -64.2 | 0. | -0. ** | 226.7 | 562.9 | 258.5 | 258.5 | 29.5 | 1.000050 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
27 SEPT.66 0827 HRS MST
ASCENSION MD. 746

UPPER AIR DATA
0027003904
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE | | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND | | WIND DATA | | INDEX OF REFRACTION |
|-----------------------------------|-----------------------|----------------|------------------------|----------------------|------------------------------|-------------------|-------|--------------------------|----------------|---------------------------|
| | | AIR DEGREES | DEWPOINT CENTIGRADE | | | KNOTS | KNOTS | DIRECTION DEGREES(TN) | SPEED KNOTS | |
| 48500.0 | 132.6 | -63.7 | 0. | -0. ** | 220.6 | 563.6 | | 260.0 | 27.4 | 1.0000049 |
| 49000.0 | 129.4 | -63.1 | 0. | -0. ** | 214.3 | 564.3 | | 261.4 | 25.2 | 1.0000048 |
| 49500.0 | 126.3 | -62.6 | 0. | -0. ** | 208.9 | 565.0 | | 261.9 | 22.7 | 1.0000047 |
| 50000.0 | 123.2 | -62.4 | 0. | -0. ** | 203.6 | 565.3 | | 262.4 | 20.4 | 1.0000045 |
| 50500.0 | 120.2 | -63.1 | 0. | -0. ** | 199.3 | 564.3 | | 263.1 | 20.2 | 1.0000044 |
| 51000.0 | 117.2 | -63.8 | 0. | -0. ** | 195.1 | 563.3 | | 264.1 | 20.1 | 1.0000043 |
| 51500.0 | 114.4 | -64.6 | 0. | -0. ** | 191.0 | 562.4 | | 265.9 | 20.5 | 1.0000043 |
| 52000.0 | 111.6 | -65.3 | 0. | -0. ** | 187.0 | 561.4 | | 268.1 | 20.8 | 1.0000042 |
| 52500.0 | 108.8 | -65.7 | 0. | -0. ** | 182.8 | 560.9 | | 271.6 | 20.6 | 1.0000041 |
| 53000.0 | 106.2 | -65.7 | 0. | -0. ** | 178.3 | 560.8 | | 274.3 | 20.2 | 1.0000040 |
| 53500.0 | 103.5 | -65.7 | 0. | -0. ** | 173.9 | 560.8 | | 274.7 | 19.0 | 1.0000039 |
| 54000.0 | 101.0 | -65.7 | 0. | -0. ** | 169.6 | 560.8 | | 275.2 | 17.8 | 1.0000038 |
| 54500.0 | 98.5 | -65.7 | 0. | -0. ** | 165.4 | 560.8 | | 275.6 | 16.9 | 1.0000037 |
| 55000.0 | 96.1 | -64.8 | 0. | -0. ** | 160.7 | 562.0 | | 275.9 | 15.7 | 1.0000036 |
| 55500.0 | 93.7 | -63.7 | 0. | -0. ** | 155.9 | 563.6 | | 275.5 | 13.9 | 1.0000035 |
| 56000.0 | 91.4 | -62.5 | 0. | -0. ** | 151.3 | 565.1 | | 277.0 | 12.1 | 1.0000034 |
| 56500.0 | 89.2 | -62.5 | 0. | -0. ** | 147.6 | 565.1 | | 284.4 | 10.7 | 1.0000033 |
| 57000.0 | 87.1 | -62.8 | 0. | -0. ** | 144.2 | 564.8 | | | | 1.0000032 |
| 57500.0 | 84.9 | -63.0 | 0. | -0. ** | 140.8 | 564.5 | | | | 1.0000031 |
| 58000.0 | 82.9 | -63.3 | 0. | -0. ** | 137.6 | 564.1 | | | | 1.0000031 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

| RELEASE TIME (MST) | | SECOND-STAGE IMPACT DISPLACEMENT IN MILES DUE TO WIND | | | | | | | | | | AZI- MUTH (DEG- REES) | THEORETICAL IMPACT FROM LAUNCHER (IN MILES) | | |
|-----------------------|-------|---|------|------|-------|---------------|-------|-------|-------|-------|------|--------------------------------|---|-----|-----|
| | | 11-216 FT | | | | 4000-72738 FT | | | | | | | | | |
| | | TOTAL | | E-W | | N-S | | E-W | | N-S | | | | | |
| RAWIN- SONDE | PTBAL | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | N-S | E-W | | RANGE | N-S | E-W |
| 0500 | 0600 | 4.6N | 0.8E | 8.0N | 10.5W | 4.8N | 10.2W | 17.1N | 19.9W | 352.0 | 83.6 | 82.8N | 11.6W | | |
| 0500 | 0630 | 2.5N | 0.4E | 7.9N | 7.2W | 4.8N | 10.2W | 15.2N | 17.0W | 353.8 | 81.1 | 80.6N | 8.7W | | |
| 0500 | 0700 | 1.5N | 1.5E | 8.0N | 5.1W | 4.8N | 10.2W | 14.3N | 13.8W | 356.0 | 79.4 | 79.2N | 5.5W | | |
| 0500 | 0715 | 1.3N | 1.6E | 6.9N | 2.6W | 4.8N | 10.2W | 13.0N | 11.2W | 357.8 | 76.7 | 76.8N | 2.9W | | |
| 0500 | 0730 | 0.5N | 0.4E | 5.3N | 6.0W | 4.8N | 10.2W | 10.6N | 15.8W | 354.7 | 81.5 | 81.2N | 7.5W | | |
| 0500 | 0740 | 0.3N | 0.8W | 5.3N | 5.3W | 4.8N | 10.2W | 10.1N | 16.3W | 354.4 | 82.0 | 81.7N | 8.0W | | |
| 0500 | 0750 | 3.5S | 0.7E | 3.4N | 1.9W | 4.8N | 10.2W | 4.7N | 11.1W | 357.7 | 76.9 | 76.8N | 3.1W | | |
| 0500 | 0800 | 5.6S | 0.7E | 2.2N | 0.6W | 4.8N | 10.2W | 2.1N | 10.1W | 358.6 | 75.5 | 75.2N | 1.8W | | |
| 0500 | 0818 | 3.7S | 0.5E | 4.1N | 1.5W | 4.8N | 10.2W | 5.5N | 12.2W | 357.8 | 76.7 | 76.6N | 2.9W | | |
| 0500 | 0832 | 3.0S | 0.3W | 1.9N | 0.6W | 4.8N | 10.2W | 3.7N | 11.1W | 357.9 | 76.6 | 76.5N | 2.8W | | |
| 0827 | 0832 | 3.0S | 0.3W | 1.9N | 0.6W | 1.3N | 10.6W | 0.2N | 12.5W | 357.6 | 77.0 | 76.9N | 3.2W | | |

| | LAUNCHER SETTING (ELEVATION 85.3 DEGREES QR) NO WIND IMPACT PREDICTED SECOND-STAGE IMPACT SECOND-STAGE IMPACT, RADAR TRACK PREDICTED BOOSTER IMPACT ACTUAL BOOSTER IMPACT | MILES FROM LAUNCHER | | |
|--|--|----------------------------|-------|-------|
| | | AZI-MUTH (DEG- REES) | | |
| | | RANGE | N-S | E-W |
| | | 66.7 | 65.4N | 13.3E |
| | | 66.2 | 65.4N | 8.3E |
| | | 70.0 | 63.9N | 2.9W |
| | | 80.5 | 79.7N | 11.1W |
| | | 0.8 | 0.8N | 0.2W |
| | | N/A | N/A | N/A |

TABLE VIII. IMPACT PREDICTION DATA
NIKE-JMDAG, MK 12 STV (SR-039)

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing information must be entered when the overall report is classified)

| | | | |
|---|--|--|-----------------|
| 1. ORIGINATING ACTIVITY (Corporate author) | | 2A. REPORT SECURITY CLASSIFICATION | |
| U. S. Army Electronics Command Fort Monmouth, New Jersey | | UNCLASSIFIED | |
| | | 2B. GROUP | |
| 3. REPORT TITLE | | | |
| METEOROLOGICAL DATA REPORT, NIKE-HYDAC, MK 12 STV (SR-039) | | | |
| 4. DESCRIPTIVE NOTES (Type of report and inclusive dates) | | | |
| 5. AUTHOR(S) (Last name, first name, initial) | | | |
| CAPTER, Len E | | | |
| 6. REPORT DATE | | 7A. TOTAL NO. OF PAGES | 7B. NO. OF REFS |
| November 1966 | | 18 | None |
| 8A. CONTRACT OR GRANT NO. | | 8B. ORIGINATOR'S REPORT NUMBER(S) | |
| D. PROJECT NO. | | ER-97 | |
| C. DA Task IV650212AL27-02 | | 9A. OTHER REPORT NO(S) (i.e., other numbers that may be assigned this report) | |
| 4 | | | |
| 10. AVAILABILITY/LIMITATION NOTES | | | |
| Distribution of this document is UNCLASSIFIED | | | |
| 11. SUPPLEMENTARY NOTES | | 12. SPONSORING MILITARY ACTIVITY | |
| | | U. S. Army Electronics Command Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico | |
| 13. ABSTRACT | | | |
| <p>Meteorological data gathered for the launching of Nike-Hydac, MK 12 STV (SR-039) are presented for the Air Force Ballistic Missile Re-entry Systems Office, General Electric Company, and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.</p> | | | |

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| 14. KEY WORDS | LINK A | | LINK B | | LINK C | |
|----------------|--------|----|--------|----|--------|----|
| | ROLE | WT | ROLE | WT | ROLE | WT |
| 1. Ballistics | | | | | | |
| 2. Meteorology | | | | | | |
| 3. Wind | | | | | | |

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